

# Claims

- [c1] A recording and reproduction apparatus for irradiating a recording medium having a track with an optical beam to record information on and reproduce information from the recording medium, the recording and reproduction apparatus comprising:
- a tracking error detection section for detecting a positional offset between the optical beam and the track and outputting a tracking error signal corresponding to the positional offset;
  - an amplification section for amplifying, based on a prescribed value of a gain, the tracking error signal to be output, wherein the prescribed value of the gain is adjustable;
  - a tracking control section for controlling a position of the optical beam based on the tracking error signal amplified by the amplification section; and
  - a control section for adjusting the prescribed value of the gain of the amplification section, wherein the control section adjusts the prescribed value of the gain of the amplification section based on a linear velocity of the recording medium.

- [c2] A recording and reproduction apparatus according to claim 1, wherein the control section adjusts the prescribed value of the gain of the amplification section when recording the information on the recording medium.
- [c3] A recording and reproduction apparatus according to claim 1, further comprising a determination section for determining whether or not information is recorded at a position, which is irradiated with the optical beam, on the recording medium, wherein the control section changes the prescribed value of the gain of the amplification section based on the result of the determination section on whether or not the information is recorded at the position, which is irradiated with the optical beam, on the recording medium.
- [c4] A recording and reproduction apparatus according to claim 3, wherein the determination section includes: a reproduction section for reproducing the information recorded on the recording medium; and a comparison section for comparing an output value from the reproduction section and a prescribed value, wherein the determination section determines, based on the result of the comparison, whether or not the information is recorded at the position, which is irradiated with the optical beam, on the recording medium.

- [c5] A recording and reproduction apparatus according to claim 1, wherein the amplification section includes:  
an amount signal output section for outputting an amount signal of reflected light based on a light amount reflected by the recording medium;  
a first gain variable amplification section having a value of a gain thereof changed based on the amount signal of the reflected light; and  
a second gain variable amplification section having a value of a gain thereof adjusted by the control section.
- [c6] A recording and reproduction apparatus according to claim 5, wherein the amount signal output section outputs an amount signal of the reflected light having a fixed amplitude when recording the information on the recording medium.
- [c7] A recording and reproduction apparatus according to claim 1, wherein the amplification section includes:  
an amount signal output section for outputting an amount signal of reflected light based on a light amount reflected by the recording medium; and  
a gain variable amplification section having a value of a gain thereof changed based on at least one of the amount signal of the reflected light and an instruction from the control section.

- [c8] A recording and reproduction apparatus according to claim 7, wherein the amount signal output section outputs an amount signal, of reflected light, having a fixed amplitude when recording the information on the recording medium.
- [c9] A recording and reproduction apparatus according to claim 1, wherein the amplification section includes:  
an amount signal output section for outputting an amount signal of reflected light based on a light amount reflected by the recording medium;  
a third gain variable amplification section for amplifying and outputting the amount signal of the reflected light, the third gain variable amplification section having a value of a gain thereof adjusted by the control section;  
and  
a fourth gain variable amplification section for amplifying and outputting the tracking error signal, the fourth gain variable amplification section having a value of a gain thereof adjusted based on the amount signal, of the reflected light, amplified by the third gain variable amplification section.
- [c10] A recording and reproduction apparatus according to claim 9, wherein the amount signal output section outputs an amount signal, of reflected light, having a fixed

amplitude when recording the information on the recording medium.

- [c11] A recording and reproduction apparatus according to claim 1, wherein a recording film of the recording medium contains an organic pigment material which is irreversibly changed using heat generated by irradiation with the optical beam.
- [c12] A recording and reproduction apparatus according to claim 1, further comprising a gain switching section for switching a value of a gain of the tracking error detection section,  
wherein the gain switching section switches the value of the gain of the tracking error detection section based on whether information is to be recorded on the recording medium or information is to be reproduced from the recording medium.
- [c13] A recording and reproduction apparatus for irradiating a recording medium having a track with an optical beam to record information on and reproduce information from the recording medium, the recording and reproduction apparatus comprising:  
a tracking error detection section for detecting a positional offset between the optical beam and the track and outputting a tracking error signal corresponding to the

positional offset;

an amplification section for amplifying, based on a prescribed value of a gain, the tracking error signal to be output, wherein the prescribed value of the gain is adjustable;

a tracking control section for controlling a position of the optical beam based on the tracking error signal amplified by the amplification section;

a control section for adjusting the prescribed value of the gain of the amplification section; and

a tilt detection section for detecting a tilt between a normal with respect to a position, which is irradiated with the optical beam, on the recording medium and an optical axis of the optical beam,

wherein the control section adjusts the prescribed value of the gain of the amplification section based on the detected tilt.

[c14] A recording and reproduction apparatus for irradiating a recording medium having a track with an optical beam to record information on and reproduce information from the recording medium, the recording and reproduction apparatus comprising:

a tracking error detection section for detecting a positional offset between the optical beam and the track and outputting a tracking error signal corresponding to the

positional offset;

an amplification section for amplifying, based on a prescribed value of a gain, the tracking error signal to be output, wherein the prescribed value of the gain is adjustable;

a tracking control section for controlling a position of the optical beam based on the tracking error signal amplified by the amplification section;

a control section for adjusting the prescribed value of the gain of the amplification section; and

a sensitivity detection section for detecting a recording sensitivity of the recording medium,

wherein the control section adjusts the prescribed value of the gain of the amplification section based on the detected recording sensitivity.

[c15] A recording and reproduction apparatus according to claim 14, wherein:

the recording medium has sensitivity information representing the recording sensitivity recorded thereon, and the sensitivity detection section detects the sensitivity information based on reflected light by the recording medium.

[c16] A recording and reproduction apparatus for irradiating a recording medium having a track with an optical beam to record information on and reproduce information from

the recording medium, the recording and reproduction apparatus comprising:

a tracking error detection section for detecting a positional offset between the optical beam and the track and outputting a tracking error signal corresponding to the positional offset;

an amplification section for amplifying, based on a prescribed value of a gain, the tracking error signal to be output, wherein the prescribed value of the gain is adjustable;

a tracking control section for controlling a position of the optical beam based on the tracking error signal amplified by the amplification section;

a control section for adjusting the prescribed value of the gain of the amplification section; and

a transfer section for transferring the optical beam in a radial direction of the recording medium,

wherein the control section adjusts the prescribed value of the gain of the amplification section based on a position of the optical beam in the radial direction.

[c17] A recording and reproduction apparatus for irradiating a recording medium having a track with an optical beam to record information on and reproduce information from the recording medium, the recording and reproduction apparatus comprising:



a tracking error detection section for detecting a positional offset between the optical beam and the track and outputting a tracking error signal corresponding to the positional offset;

an amplification section for amplifying, based on a prescribed value of a gain, the tracking error signal to be output, wherein the prescribed value of the gain is adjustable;

a tracking control section for controlling a position of the optical beam based on the tracking error signal amplified by the amplification section;

a control section for adjusting the prescribed value of the gain of the amplification section; and

a modulation section for modulating the optical beam based on information to be recorded on the recording medium,

wherein the control section adjusts the prescribed value of the gain of the amplification section based on an average intensity of the modulated optical beam.

[c18] A recording and reproduction apparatus for irradiating a recording medium having a track with an optical beam to record information on and reproduce information from the recording medium, the recording and reproduction apparatus comprising:

a tracking error detection section for detecting a posi-

tional offset between the optical beam and the track and outputting a tracking error signal corresponding to the positional offset;

an amplification section for amplifying, based on a prescribed value of a gain, the tracking error signal to be output, wherein the prescribed value of the gain is adjustable;

a tracking control section for controlling a position of the optical beam based on the tracking error signal amplified by the amplification section;

a control section for adjusting the prescribed value of the gain of the amplification section; and

a temperature measurement section for measuring a temperature of the recording medium,

wherein the control section adjusts the prescribed value of the gain of the amplification section based on the measured temperature.